Photocurrent Measurements on Novel Group IV Semiconductor Alloys  

JAY MATHEWS, Dept. of Physics, Arizona State University,  
RADEK ROUCKA, SHUI-QING YU, JOHN TOLLE, JOHN KOUVETAKIS, JOSE MENENDEZ, Arizona State University — A system was developed for measuring photocurrent as a function of incident power and wavelength in new Ge$_{1-y}$Sn$_y$ semiconductor alloys. Detectors based on this material are expected to operate at wavelengths longer than possible in Ge-detectors due to the lowering of the band gap induced by Sn. Photocurrent measurements were taken on several alloys with incident light at 1.55 µm for a large range of intensities. Additionally, the absorption coefficient of these samples was determined as a function of wavelength.